# Novel (4,8)-connected scu Framework Constructed by Tetrakis(4-benzoic acid)ethylene

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Supporting Information

## Experimental Section

All the starting materials were commercially available reagents for analytical grade and used without further purification.

**Tetrakis(4-benzoic acid)ethylene·0.5$H_2O$ ($H_4$tbe·0.5$H_2O$)**: To a solution of tetrakis(4-bromophenyl)ethylene (8.38g, 12.9mmol) in 300 mL of dry THF, n-butyllithium (2.5 M in hexane, 26 ml, 65.0 mol) was added dropwise at -78 $^oC$ under $N_2$. After addition, the mixture was stirred for another 2 h at -78 $^oC$, and solid carbon dioxide (100 g) was added in portions. The mixture was warmed to room temperature and stirred overnight. The solution was adjusted to pH = 1 with conc. HCl (15 mL) and exacted by mixed solvent of ether and THF to give white solid. A mixture of the white solid, conc. $H_2SO_4$ (8.0 mL) and ethanol (250 mL) in a 500 mL three-necked flask was stirred at reflux for 20 h. The resulting solution was concentrated under reduced pressure. The residue was purified by silica gel chromatography to yield 2.62 g (38.6%) of tetraester a white solid. A mixture of

tetraester, sodium hydroxide (3.43 g), ethanol (150 mL) and $H_2O$ (150 mL) in a 500 mL three-necked flask was stirred at reflux for 20 h. The resulting solution was concentrated under reduced pressure, and the residue was acidified with conc. HCl at $0^oC$. The precipitate was collected and dried to yield 2.01 g (94%) of tetrakis(4-benzoic acid)ethylene·$0.5H_2O$ as a white solid. Anal. Calcd for $C_{30}H_{25}O_{10.5}$ (%):C, 65.09; H, 4.55. Found (%):C, 65.31; H, 4.35. Selected IR (KBr, $cm^{-1}$): 3444.4(m), 3175.6(w), 1693.1(s), 1605.8(s), 1410.3(m), 1248.3(m), 1177.8(m), 1105.0(m), 748.6(m).

Table S1 Selected bond lengths (Å) and angles (deg) for **1**.

| Compound **1** | | | | | |
|---|---|---|---|---|---|
| Co1-O4 | 2.099(2) | Co1-O3 | 2.108(17) | Co1-O2b | 2.087(2) |
| Co1-O2c | 2.087(2) | Co1-O1 | 2.101(2) | Co1-O1a | 2.101(2) |
| Co1-O3' | 2.161(17) | Co1-O3'a | 2.161(17) | | |
| O4-Co1-O3 | 174.7(5) | O4-Co1-O2b | 87.5(3) | O3-Co1-O2b | 96.1(3) |
| O4-Co1-O2c | 87.5(3) | O3-Co1-O2c | 96.1(3) | O2b-Co1-O2c | 90.4(4) |
| O4-Co1-O1a | 85.7(3) | O3-Co1-O1a | 90.7(3) | O2b-Co1-O1a | 173.2(3) |
| O2c-Co1-O1a | 88.4(3) | O4-Co1-O1 | 85.7(3) | O3-Co1-O1 | 90.7(3) |
| O2b-Co1-O1 | 88.4(3) | O2d-Co1-O1 | 173.2(3) | O1a-Co1-O1 | 92.0(4) |

Symmetry code ： a: x, y, -z+2 b: x-1/2 ,-y+3/2, z c: x-1/2, -y+3/2, -z+2